3-28-60

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U. S. DEPARTMENT OF AGRICULTURE--FOREST SERVICE
PACIFIC SOUTHWEST FOREST AND RANGE EXPERIMENT STATION
Division of Forest Insect Research

FOREST INSECT CONDITIONS
HARRISON GULCH
YOLLA BOLLA DISTRICT
SHASTA-TRINITY NATIONAL FOREST

INTRODUCTION

On January 27, 1960, the Forest Service Regional Office requested a biological evaluation of forest insect conditions in the Harrison Gulch area. The California Division of Forestry also expressed interest in an evaluation of the situation. Information provided by the Regional Office on February 5 indicated that faded groups of ponderosa pine were appearing on some 10,000 acres surrounding the 2,200-acre Sunday burn of August 1957. Leave trees within the burn were also faded. These trees were reported to be infested with ips and western pine beetle.

Thirty-three percent of the land within this area is privately owned, the ownership being distributed among some 26 individual land holders. All private land is heavily cut over, some of the cutting having been done in the summer of 1959. The remainder of the area is in federal ownership, consisting of pole-size and small sawtimber stands of second-growth ponderosa pine.

On March 3, B. E. Wickman examined part of the Harrison Gulch infestation but a heavy snow storm precluded aerial observations and any extensive ground survey. The groups which were examined consisted of pole-size or smaller trees infested by ips and western pine beetle, confirming information sent to us by the Region. Very heavy woodpecker work was in evidence on western pine beetle-infested trees. The ips beetles at this time appeared to be callow and mature adults, the latter ready to fly whenever the weather warmed up. The western pine beetles were still larvae with light to medium broods.

On March 15, B. E. Wickman, with State and Federal foresters, surveyed the area by airplane, while C. J. DeMars, D. Dotta (Sacramento office of the State Division of Forestry) and John McVay (District FCO) groundchecked groups of faded trees.

BIOLOGICAL EVALUATION

Aerial examination.--Wickman observed groups of fading ponderosa pine poles just north of Little Round Mountain, north and west of Knob Peak and on the ridge south of Spiers Gulch, and all some distance from any 1959 burn. He also found similar damage in green timber on the north and south sides of the Jones burn. According to local Forest Service personnel most of these groups were on private land. Areas that had recently been logged appeared to have very little loss.

Ground examination.--Many of the larger groups of infested trees on federal ownership, referred to in earlier reports, had been logged before this survey was made and presumably the western pine beetle broods had been effectively destroyed. Logging probably helped to reduce the ips, although some of the latter may have emerged before this work was completed.

Insect infestations on 3 areas, as shown on the attached map, were checked, and the following conditions found:

Area 1.-- The trees checked in this area consisted of small sawtimber size ponderosa pine which had been felled several days before the survey. The tops had been treated by burning and were charred but ips emergence holes were visible, the tops having been abandoned earlier. One uncharred section some 4-feet long and 14 inches in diameter contained heavy, mature ips broods, ready for flight - some 8 adults in a 4-inch x 2-inch sample. Western pine beetle broods were light to medium, but were to be removed by logging before emergence.

The major groups reported earlier and examined by Wickman on 3 March had been logged. Discussion with the District Ranger indicated that remaining large groups were in the vicinity of the Jones burn. This burn is several miles to the west of the infestation area included in the original report. The burn occurred in August 1959 and covers some 5,000 acres. Fifty MBM of dead and injured ponderosa pine had been logged by February; another 40 MBM remained to be cut. The general distribution of beetle-killed trees in the three townships shown on the map and the amount of weakened timber remaining in the burn, entomologically tie the Jones burn into the Harrison Gulch infestation. It was therefore decided to examine several of these groups on the ground.

Area 2.--A large concentrated group of 50 beetle-killed ponderosa pine, 8 to 14 inches d.b.h., was examined in this area. The tops down to 6 to 10 inches diameter had been killed by ips and western pine beetle broods were present in the lower bole. The middle half of the bole had been heavily worked over by woodpeckers. The ips broods were in part destroyed but in many places woodpeckers did not reach to the wood. Therefore, many ips may have escaped destruction. In either case the ips had abandoned the trees by this time. No new attacks in surrounding green trees were detected. The western pine beetle broods were light to medium in the lower 4 to 10 feet of the bole, where they had not been worked over by woodpeckers. Some predaceous beetle larvae were present, but no diseased western pine beetle larvae were found.

Area 3.--At this location a faded group of some 20 pole and small sawtimber-sized ponderosa pine, somewhat scattered over 2 to 3 acres in the Prospect Creek drainage, were examined. These trees were predominately top-killed by ips but contained light broods of the western pine beetle in the base. Woodpecker work on the infested trees was light to medium. Green trees in the surrounding stand did not show evidence of attack, although the ips had abandoned the faded trees.

3-28-60

DISCUSSION

The early emergence of ips broods before logging was completed, the survival of some western pine beetle broods despite predation by woodpeckers, coupled with poor site conditions in the stands in this lower eastside of the coastal range, and the proximity of the infestation to fire-damaged trees indicate the possibility of further losses in 1960. The hasard is especially acute around the Jones burn because of the presence of fire-injured trees. The prompt removal of many western pine beetle-infested trees which has been accomplished, as well as the continued salvage of fire-scorched trees around the burn, may reduce the threat. The remaining broods which can be located on the basis of faded trees do not appear to be important enough at this time to warrant chemical control, but the continued logging of any material still infested, where it is practical to do so, should be beneficial. The Harrison Gulch area should be kept under close surveillance to detect new bark-beetle attacks which will result if natural control and logging have not effectively reduced the insect population.

It will not be possible to rely upon fading foliage to detect the spring and summer attacked trees as the broods have usually already started to abandon the tree before the foliage fading is detected. Trees surrounding 1959-60 fades should be examined for pitch tubes and frass in order to spot them for control before the broods emerge. If this is not possible, control will have to be delayed until fall of 1960 or spring of 1961.

In particular the Jones burn and surrounding stands should be examined frequently to determine any tendency toward the development of group-killing by western pine beetles. Continued logging of scorched trees and prompt action against bark-beetle infestations that do develop around the burn may be necessary to prevent heavy losses.

March 28, 1960
Berkeley, Calif.

C. J. DeMars,
Entomologist

Attachment

Harrison Gulch Infestation
Yolla Bolla District
SHASTA – TRINITY N.F.

March 15, 1960

1" = 2 MILES